S1E2 - Once Bitten
S1E2 - ONCE BITTEN

Intro.

EMILY
Hello. You’re listening to Device. Your monthly book club with a science-based twist. In each episode, we discuss a story that uses a natural phenomenon to drive the action of the plot and dissect it for scientific accuracy. I am your host, Emily T. Griffiths, and in this episode, we are going to be diving into the novel behind the great thriller: Jaws by Peter Benchley.

MUSIC: THRILLING MUSIC

SOUND: POSSIBLY WITH BUBBLES FLOATING TO THE SURFACE.

EMILY
At its heart, Jaws is a story about a massive shark that moved unexpectedly into the waters off a little coastal town called Amity. That simple idea has struck fear into beachgoers for more than 40 years.

The novel Jaws was a best selling summer read. It’s success surprised Benchley himself:

BENCHLEY
"I didn’t think anyone would want to read a story about a fish."

EMILY
But oh how we did. We’re going to talk about that fish, and how Jaws tapped into something which enabled us to villainize an endangered species.

Section 1

EMILY
Welcome back, you’re listening to Device, and we’re discussing Jaws by Peter Benchley.

In this series, we are generally going to avoid talking about films. But, in the case of Jaws, we are not simply talking about a film adaptation. We are talking about the first blockbuster that changed how cinema spoke to an audience. It’s still considered one of the best American films ever made.

There are some major difference between the novel and the film. Chief Brody is a local, and has a stressed marriage. Quint barely shows up until the last third of the book, and doesn’t help pass the time with well-told war stories. There’s a subplot about the mayor’s

(MORE)

(CONTINUED)
EMILY (cont’d)

relationship with the mafia, which is the real reason
he doesn’t want to close the beaches.

But I think the biggest difference is with Hooper. In
the novel, Hooper is an obnoxious egomaniac, rather
than a lovable goof.

HOOPER FILM

(RICHARD DREYFUSS IMITATING W. C. FIELDS)

I don’t have to take this abuse much longer!

EMILY

But he’s also, as the marine biologist, the device both
Benchley and the film use to give us shark facts.

And Benchley’s Hooper was better scientist.

HOOPER BOOK

Sharks have everything a scientist dreams of. They’re
beautiful[God, how beautiful they are! They’re
like an impossibly perfect piece of machinery. They’re
as graceful as any bird. They’re as mysterious as any
animal on earth. No one knows for sure how long they
live or what impulses[except for
hunger[they respond to.

EMILY

The first scene of the novel is as memorable, and
thrilling, as the start of the film. Young Chrissie
Watkins is skinny dipping at night.

SOUND: SOUND OF SOMEONE SLIPPING INTO WATER.

EMILY

But the story starts from the perspective of the fish.

BENCHLEY

(FROM JAWS NOVEL)

The great fish moved silently through the water,
propelled by short sweeps of its crescent tail. The
mouth was open just enough to permit a rush of water
over the gills. There was little other motion: an
occasional correction of the apparently aimless course
by the slight raising or lowering of a pectoral fin—as
a bird changes direction by dipping one wing and
lifting the other. The eyes were sightless in the
black, and the other senses transmitted nothing
extraordinary to the small, primitive brain... it
survived only by moving.

(CONTINUED)
EMILY
He shows us the fish underwater while we, the reader, know that Chrissie Watkins is at the surface and that it’s only a matter of time before they become part of the same story.

SOUND: WATER-Y SWISH.

BENCHLEY
(FROM JAWS NOVEL)
A hundred yards offshore, the fish sensed a change in the seas’s rhythm. It did not see the woman, nor yet did it smell her. Running within the length of its body were a series of thin canals, filled with mucus and dotted with nerve endings, and these nerves detected vibrations and signaled to the brain. The fish turned to the shore.

EMILY
It is these perspectives from the shark that is so eerie about the book. Just before the shark appears there is a small aside so that we, the reader, know and understand its instincts.

DEWER
You know, initially it’s smell.

EMILY
This is Dr. Heidi Dewer from the National Marine Fisheries Service based in La Jolla.

DEWER
I work in the Life History Program and our group is responsible for collecting the biological data that supports sustainable management of fish like tuna or sharks or billfish, which would include swordfish.

EMILY
She is the lead author of a status report on the northeast Pacific population of white sharks.

DEWER
They have excellent olfactory senses so.

They can smell blood from miles and miles away. Then they also have the lateral line which are all these... And he explained that really well, actually.

EMILY
Those mucus filled canals.
DEWER
Which allows them to detect vibrations.

I thought he did a good job of sort of capturing the biology in those moments.

EMILY
So shark perspective is OK, but that isn’t what’s scary about Jaws.

The three main features of the Jaws shark is that it
a) has developed a taste for humans,
b) is massive, and
c) sticks around one area hunting.

So let’s break it down. First, are we a good food source for white sharks?

DEWER
Well, their diets actually change with ontogeny or development. Smaller white sharks until maybe 8 or 9 feet, would feed mostly on fish or sharks, skates, rays, and often feed off the shelf. And then when they get to be about that size, then their diet shifts. And interestingly, their teeth morphology also shifts. And they start feeding on marine mammals. So, they would eat seals, sea lions or feed on dead whale, floating whale, carcasses which sounds very gross and it is, but a good food source.

EMILY (IN INTERVIEW)
And we’re pretty bony, by comparison.

DEWER
Yeah, for the most part, we are pretty bony and definitely don’t have the same amount of fat as a marine mammal would.

EMILY
Bluntly put, we’re not good food. Sharks bite us to taste us, and when they find out we’re not what they want, they spit us out. This is why most people survive shark bites.

Well, that and the miracle of readily available modern medicine.

Next, one of the most intimidating aspects of the Jaws shark is its size. 20 feet is massive, about half the size of a telephone poll.

The film even bumps that number up to 25 feet. And to me, that just feels cartoonishly large.

(CONTINUED)
But if you look into San Diego’s own history with shark interactions, one 20-foot story does come up.

Since the 1930s, there have only been 37 shark incidents in San Diego County.

Fourteen of them have been white sharks.

And only two have been fatal.

The first documented fatal shark bite in San Diego was in 1959.

**MUSIC: LIGHT, BEACHY, 1950S MUSIC.**

Robert Pamperin was abalone fishing with his friend Gerald Lehrer, at Alligator Head near the west end of La Jolla Cove. They were separated by about 30 meters when Bob Pamperin called out for help.

**BOB**

Help!

**SOUND: SPLASH.**

**EMILY**

Lehrer recalls seeing his friend lift abnormally out of the water before disappearing below the waves. He dove down to help, thinking Bob had a cramp. What he saw instead was chilling.

**MUSIC: STARK CHANGE IN BACKGROUND MUSIC.**

Lehrer reported that Bob was in the mouth of a 20-foot shark. He described the triangular teeth and dark grey back of a white shark near the sandy bottom.

After grabbing another breath,

**SOUND: INHALE, SPLASH!**

Lehrer dove back into the water tried to scare away the shark by frantically waving his hands, but it was no use. Succumbing to shock, Lehrer made his way back towards the shore.

**LEHRER**

(INCOHERENT SHOCK NOISES)

**MUSIC: MUSIC STOPS.**

That’s a scary story, but it’s still just one of two times. Out of 37. In the past 80 years.

Since only one man saw the 20-foot shark, how likely is it that the shark was actually that size?

(Continued)
DEWER
Well, the maximum. I mean, you’d read all sorts of reports in the literature but the one that’s really been validated is about 21 feet for the largest shark.

EMILY
Ok, but that’s the max. What’s the average size?

DEWER
So, an average size is kind of a... It would be like asking what’s the average size of a human being. Well, you have little kid human beings and you have adult human beings and creating one average from all of that, I’m not sure how much information that provides.

EMILY
The average size of a white shark depends on how it is using the habitat. As it turns out, most of the sharks off our coasts are basically little kids.

From about Point Conception down, southern California and Baja is a really important nursery area. Our waters are a source of food, protection, and resources which support a healthy ecosystem.

DEWER
And because of that, it’s a foraging ground for a ton of different species from swordfish to squid to marine mammals and of course, the sharks.

EMILY
On an average day, a white shark found along the coastline isn’t going to be a 20 footer. It’s going to be 10 or 12, until they reach maturity and head further offshore.

MUSIC: MUSIC PAUSE, CHANGE THEME

EMILY
Last, and perhaps the most persistant fear Jaws made popular, is the concept of a ’rogue shark.’ A shark that has not only developed a taste for human flesh, it hangs around human populated beaches for food.

Hooper, in the film, suggests Jaws is a rogue shark.

HOOPER FILM
It’s just a theory that I happen to... agree with.

EMILY
But Hooper in the book knows better. Rogue sharks are myths. As Dr. Dewer said before, sharks don’t specifically hunt for humans. Sometimes, we’re just in the wrong place.

(CONTINUED)
WENDY
But, it was upsetting to Peter because what he was trying to say was that there are great white sharks; they are doing what they do.

EMILY
More on that from our next guest, after the break.

SECTION 2

EMILY
Welcome back. Your listening to Device and this month we are talking about Jaws by Peter Benchley and the myths surrounding white sharks.

The film, Jaws, relies heavily on the rogue shark theory. That a shark will hang around a human populated beach hunting those foolish enough to go in the water.

The novel certainly borrows from that idea, but it never suggests the shark is malicious.

HOOPER BOOK
Look, Chief, you can’t go off half-cocked looking for vengeance against a fish. That shark isn’t evil. It’s not a murderer. It’s just obeying its own instincts. Trying to get retribution against a fish is crazy.

EMILY
Yet we see a lot of headlines that use the phrase "rogue shark" or "man-hunter." It’s eye-catching.

There’s the legendary 1916 man-eating shark that many think Jaws is based off of. 4 fatal shark bites and one survivor within 12 days going north along the New Jersey coast. While a white shark was captured with human remains in its stomach, some of the victims had bites marks from a bull shark. Different species, different sharks.

More recently, in 2010 it was reported at a "rogue shark" bit 5 people with one fatality in Sharm el Sheik, Egypt. But the articles describes how a livestock ship was tossing sheep overboard as they perished crossing the Red Sea.

SOUND: SHEEP PLOPPING IN THE WATER.
Multiple sharks followed the discarded carcasses to shore, looking for free food. Kinda like grad students.

In every situation of multiple shark bites in one area, if you keep reading you’ll find it couldn’t be just one rogue shark.

(CONTINUED)
When Peter was researching Jaws, he read everything he could get his hands on about “rogue shark” phenomenon.

Unfortunately, Peter Benchley died in 2006.

I should say, Emily, thank you very much for asking me to do this podcast.

This is Wendy Benchley, Peter’s wife.

Yeah; I’m really delighted to be talking with you.

Based in Washington DC, Wendy is a powerhouse for shark conservation and actively engaging with the marine policy community. She speaks with people around the world addressing shark myths, like rogue sharks.

... because it had been debunked by really good scientists.

Benchley himself told the Daily Express:

Knowing what I know, I could never write that book today. Sharks don’t target human beings, and they certainly don’t hold grudges.

Benchley is unique in this. There aren’t a lot of authors that would openly regret their claim to fame.

But he saw how the public feared and misunderstood sharks.

Furthermore, he saw how that fear was hurting shark populations.

Sharks, in general, aren’t doing so good.

So he tried to flip the script. He went on to write two books about how shark conservation matters. He and Wendy started doing appearances.

Wendy continues that work.
WENDY
And, I’ve been a lucky soul all my life because I’ve been involved in many non-profit groups.

EMILY
So today, what’s the greatest threat shark populations are facing?

WENDY
Oh, I think it’s certainly the shark’s finning that goes on for shark fin soup, and that has been just devastating to the shark population.

EMILY
Shark fin soup delicacy in many Asian countries, but mostly China, costing upwards of 150 US dollars per bowl. It is made by cooking a dried shark fin, which is mostly cartilage, in broth. Apparently, it has a nice texture. It’s a status symbol and thought to have medicinal benefits.

WENDY
Oh, shark-finning is just an odious, odious practice where the sharks are caught, and while they’re still alive their fins are hacked off with knives. And then, in most cases, the sharks are thrown back into the water to die a slow, suffocating death. And, it’s just astonishing that you think that there are, well, at least 70 million sharks that are caught and finned this way.

EMILY
That’s 70 million a year. And sharks can’t reproduce fast enough to adequately replace themselves. We’re hunting them out of existence.

Shark finning is a pretty lucrative practice, retailing at 400 US dollars per kilogram, dried. A single fin from a protected species, like whale or white sharks, can fetch 10,000 dollars.

So, what’s there to do? Regulations help but they don’t stop the demand for the supply.

It’s about changing the public’s perception.

WENDY
I have worked for many years with WildAid, which is an organization that’s based in San Francisco. And, they have just done a spectacular job of using Asian icons, like Jackie Chan and Yeo Mang to do very professional, absolutely brilliant public service announcements that have saturated China and other Asian countries.

(CONTINUED)
So, this campaign has been very successful. And, the demand for shark fin soup has gone down in China by 80% since 2014. So, the hope is that there will be less sharks caught and killed this way as the years go along.

EMILY
Public awareness is key to solving a lot of conservation issues. Outside of shark fin soup, shark liver oil and cartilage are sold as health supplements. You know, medicinal benefits. Manufacturers claim that sharks don’t get cancer and that by ingesting shark supplements you can reduce your risk of cancer or even treat cancer while boosting your immune system.

WENDY
The fact is, sharks are very good healers. And, they do have extraordinarily strong immune systems. But, this is in a molecular level. And, by just ingesting shark oil, you’re not going to get that kind of benefit from the shark oil.

EMILY
Or any shark product. There is absolutely no reproducible medical evidence that shark products help with any ailments. Period.

WENDY
So many supplements are promoted by companies, and there’s been no testing at all. And, certainly that’s the case with shark oil.

So, I hope people just will not fall for this, buy nothing to do with shark cartilage, or shark oil, and certainly; please, please, please, don’t have shark fin soup.

EMILY
Different protections and regulations came into effect in the 90s, when shark populations hit a record low, and shark finning has been banned in the US since 2000.

The protections have made North America one of the last shark refuges.

And it’s worth highlighting US fisheries are getting better at being sustainable, especially on the west coast. There are better protections on gear to prevent bycatch.

DEWER
Like the current longlines are not your grandfather’s longlines.

(CONTINUED)
EMILY
Dr. Dewer, again.

DEWER
They’ve made a tremendous amount of advancements and there’s more work that needs to be done.

And that’s our responsibility, is to try to balance, utilizing a resource but doing it sustainably.

Like in San Diego, our whole fishing community’s been revitalized by the dockside market and the direct marketing from the boats straight to consumers and the chefs are totally into it. So, we can do it, it’s challenging, but I think that in the end, if we do it sustainably, that’s the end goal.

EMILY
There are still management challenges with white sharks and open ocean fishing gear, but some shark populations are starting to grow again. That’s encouraging. It means we’re doing something right.

THEME CHANGE.
When writing this episode, everyone I mentioned it to had a story about how scared they were when they first saw Jaws. How they wouldn’t swim in lakes or swimming pools, how it ruined a family vacation, or how it inspired them to learn more about marine biology. Because of this book, we have this cultural connection to white sharks. It’s why we call them great.

What makes Jaws such a timeless thriller is how close it sits to the truth. Today we are bombarded by silly parodies like Sharknado and any one of numerous takes on how Megalodon, the more-than-twice-as-large prehistoric ancestor to the great white, may still be lurking in the deep ocean.

Speaking of prehistoric creature features, where’s the placoderm movie, huh?

We know that these movies are silly, though. That’s part of the fun. Jaws is scary because it’s based in the almost-true. Sharks can be 20 feet long even if it’s unlikely to see one that size near the shore. And sometimes, they do bite people.

It doesn’t matter that you are far more likely to be bitten by a shark and left alone to survive, or really, not to be bitten at all. There’s still that fear. And that fear creates prejudice.

(MORE)
EMILY (cont’d)
Benchley knew that fear existed. After Chrissie Watkins was found, Chief Brody is talking to newspaper editor Harry Meadows, who has a much more influential role in the novel than the film. Meadows, concerned about tourism, says.

MEADOWS
If I run a story saying that a young woman was bitten in two by a monster shark off Amity, there won’t be another house rented in this town. Sharks are like ax-murders, Martin. People react to them with their guts. There’s something crazy and evil and uncontrollable about them.

EMILY
Or at least, that’s perception sharks just can’t seem to shake.

So, what can we do about it? Well, we can change how we talk about sharks.

WENDY
I just would like to say about shark attacks that I think the newspapers, and magazines, and people who talk about sharks should talk about a shark bite, not a shark attack.

In so many cases, when a shark bites a human, it is just that, a bite, he goes away, and does not come back.

EMILY
Changing the language that we use to talk about sharks matters. Shark Attack —

SOUND: GULP

EMILY
— has a negative connotation. If you’re being attacked, you need to be on the defensive. Shark bite better describes what’s really going on.

WENDY
So, this is a whole new way of approaching the ocean and our place in the ocean. And, do remember that if there are more shark bites nowadays, that there are so many more millions of people in the oceans swimming. When you think about it, 100 years ago, or 150 years ago, I mean swimming was just not what it is now.

(Continued)
EMILY (IN INTERVIEW)
Yeah.

WENDY
So, now we have millions of people in the ocean, enjoying the ocean as they could and should. But, we do have to have respect for the fact that we are in the shark’s environment, and it is his world, and we need to swim wisely.

HEIDI
...the risk of being bitten is still far, really, really, really small.

But at the same time, there’s a risk. And one of the most amazing things about living here is that you can walk down to the beach and dip your feet in wilderness. Like, that is wilderness. And that’s amazing to be able to wade into wilderness at our doorstep. But wilderness comes with wild animals and sharks are wild animals.

EMILY
So let’s follow Benchley’s example, and help keep them there.

Credits

EMILY
Device is co-produced by myself and Derrick Ascota. It is recorded at KPBS and Mega64 Studios in San Diego, California. John Wanser is our audio engineer, with additional music by the Bicycats.

Voice actors for this episode include Mark Atkinson, Aaron Gold, and Anthony Maze.

At KPBS, Emily Jankowski is Technical Director

Kinsee Morlan Podcast Coordinator

Lisa Jane Morissette is Operations Manager, and

John Decker is Director of Programming.

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There was so much information that we had to cut out of this episode. I kept both Dr. Heidi Dewer and Wendy Benchley chatting for nearly an hour apiece. Heidi and I talk a lot more about sharks and what’s going on with the Northeast population. Wendy had so many amazing first-hand stories about making Jaws and her and Peter’s crusade for shark conservation.

(CONTINUED)
WENDY
And, when the shark came up again, and opened her mouth to take another bite, I grabbed the rope, and yanked as hard as I could, and pulled it out of her mouth.

EMILY
Please, do yourself a favor and go listen to the full conversations on Device Interviews wherever you get your podcasts. You will learn cool things. I promise.

Next episode we’ll be discussing Life As We Knew It by Susan Beth Pfeffer. So get reading.

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Thanks for listening.